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TEACHING TECHNIQUES FOR DEVELOPING THE LEARNER–CENTRED APPROACH IN THE CLASSROOM

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Abstract:
This paper attempts to study basic teaching techniques that contribute to the development of the learner-centred approach in the classroom of modern schools. More specifically, the purpose of this paper is to develop seven teaching techniques - brainstorming, concept maps, working groups, role-playing, problem-solving, debate, De Bono's Six Thinking Hats - that contribute effectively to teaching and learning through the development of a learner-centred approach. The choice of this topic arose from the fact that the above teaching techniques are interesting and original educational tools since they place the learner at the centre of the educational process and in this way the intended learning outcomes are achieved after the end of the teaching. This paper is based on the literature review of about 180 researches and studies both in Greek and International level through the search of databases and search engines such as ERIC, Google Scholar, etc. Finally, it is worth noting that this paper aims to provide a useful guide for teachers to utilize these teaching techniques in the classroom since when these innovative teaching techniques are applied in the context of the learner-centred approach they have significant advantages such as focusing on students' needs, making the lesson more engaging, enhancing students' self-confidence and collaborative skills, etc.

Keywords: teaching techniques, learner-centred approach, classroom

1. Introduction

Teaching is a complex and multi-interpretive concept, which depends on the social, cultural and ideological background of each era and society in which it is studied (Dimitriadou, 2016; Gay, 2018; Tzifopoulos, 2021). Contemporary developments in the field of education shaped by the increasing cultural heterogeneity of the student population, the integration of new technologies in school and the diversification of the needs of the modern student constitute a new educational reality that requires new educational and teaching adaptations in teaching and learning in the classroom (Başaran, 2021; Ioannidi & Malafantis, 2022; Kalatzis & Cope, 2013; Malafantis, 2022; Bayati, 2015).

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Through this ever-increasing diversity among students in today's schools, the need for all education stakeholders to readjust and redefine teaching and learning in the general classroom is becoming imperative (Forghani - Arani et al., 2019; Koulis & Bagakis, 2022; Naz & Murad, 2017). For example, in the case where the teacher's teaching is only seat-based (introduction) and with students sitting in rows of vertically structured desks and facing the blackboard, at this time the so-called teacher-centred model of teaching is considered obsolete because the requirements in the approach to knowledge have changed (Fykaris, 2014) since modern scientific views recognize the importance of the classroom context and emphasize the educational process based on constructivist and socio-cultural theories of learning (Avgitidou & Sidiropoulou, 2020).

Studies (Barta et al., 2022; Freeman et al., 2014; Fykaris, 2014; Vosniadou et al., 2020; Yennita & Zukmadini, 2021) questioned the effectiveness of the teacher-centred, frontal teaching model and recommended that teachers use alternative teaching techniques to develop a learner-centred approach that facilitates the use of knowledge for everyday solutions, thus developing 21st-century skills such as analytical thinking, metacognition, critical thinking, problem-solving, collaborative communication, etc. Such teaching techniques are brainstorming, concept maps, working groups, role-playing, etc. (Barta et al., 2022; Linsenmeyer, 2021; Lombardi et al., 2021; Fykaris, 2014).

In the modern school of the 21st century, the concept of teaching takes a broader and more flexible form that includes the transmission of knowledge through interdisciplinary and differentiated approaches, the concept of apprenticeship, the development of skills, the development of critical thinking, the concept of metacognition, as well as the concept of social adaptation of students to the contemporary socio-educational situation (Mahdavi, 2014; Felce, 2019; Tzifopoulos, 2021; Tharp, 2018). In all of the above, a decisive factor, among others, is the skills that teachers possess to be able to use modern teaching methods and techniques during teaching (Kaldi & Xafakos, 2017; Poth, 2012; Tzifopoulos, 2021).

As an extension of the above problematic, it is worth noting that in the context of the learner-centred approach to learning with the application of teaching techniques such as brainstorming, working groups, role-playing, etc., the student is at the center of the learning process (Abedianpour & Omidvari, 2018; Beichner et al., 2014; Bonwell et al., 2012; Johnson & Johnson, 1999; Mantra et al., 2022; Mantra & Handayani, 2022). The importance of applying these teaching techniques during teaching and learning in the classroom has been highlighted in numerous studies (Aaker - Smith, 2006; Bonwell, 2012; Crawford et al., 2005; Lombardi et al., 2021; Mantra et al., 2022; Petruţa, 2013; Surakarn et al., 2020; Raluca, 2016; Takele, 2020).

By using teaching techniques that develop the learner-centred approach, the student is given the opportunity on the one hand to express his/her concerns, pre-existing knowledge, interests and needs and on the other hand, is given the necessary space for action and participation in all phases of the learning process. With this approach, it is no longer the quantity of knowledge that matters, but - above all - the discovery of methods and dynamic ways of approaching learning, as well as the creation of incentives for continuous learning and training. In other words, it promotes experiential learning,

interaction, creating conditions for learning and research, while providing opportunities for developing critical thinking and reflection (Edwards, 2015; Fykaris, 2014; Linsenmeyer, 2021; Lombardi et al., 2021; Race, 1999; Takele, 2020; Tseng, 2019; Widiastuti et al., 2022; Yuliani et al., 2019). The learner functions within the group as a planner, together with the teacher, in an effort to approach and master knowledge (Chrysafidis, 2014).

The above findings - based on the Greek and international literature review - regarding the importance of the use of active teaching techniques in the classroom as interesting and original educational tools, led to the necessity of writing this paper. The purpose of this paper is to develop the main points of learner-centred teaching techniques that contribute in an effective way to teaching and learning, so that it can be a useful tool and guide for teachers so that they have the opportunity to utilize them - as often as possible - in the modern classroom attended by primary and secondary school students. The seven teaching techniques that will be analysed in this paper are: i) brainstorming, ii) concept map, iii) working groups, iv) role-playing, v) problem-solving, vi) debate and vii) De Bono's Six Thinking Hats.

2. Literature review

Through literature review it has been found that certain teaching techniques - such as brainstorming, concept map, working groups, role-playing, etc. are specifically labelled as active or participatory teaching techniques because they place the learner at the centre of the educational process rather than the teacher, draw on the learner's experiences and enhance his/her active participation in the context of problem-solving, offering a better understanding of the world around him/her and more opportunities for reflection and action (Edwards, 2015; Kokkos, 1999; Noyé & Piveteau, 1999; Takele, 2020). Furthermore, the application of these participatory teaching techniques is associated with more effective learning (Courau, 2000) and is among the factors of successful teaching (Hackathorn et al., 2011; Michel et al., 2009; Serva & Fuller, 2004). At the same time, several studies show that active teaching techniques positively influence learning outcomes during teaching and learning in the classroom (Armbruster et al., 2009; Barta et al., 2022; Hyun et al., 2017; Linsenmeyer, 2021; Mantra et al., 2022; Mantra & Handayani, 2022; Rissanen, 2014; Surakarn et al., 2020; Termos, 2013).

In addition, relevant research - conducted for more than twenty years - concludes that higher social and cognitive outcomes for students are significantly more likely to occur in learner-centred environments, characterised by high facilitative attitudes of teachers, i.e. authenticity and transparency, acceptance of diversity and empathy and understanding for their students (Kyprianidou, 2012; Kyprianidou et al., 2012; Rogers & Freiberg, 1994). In this context, it was found that learning is facilitated in environments where the learner-centred approach is implemented through the application of teaching techniques in which students have supportive relationships, have a sense of control over the learning process and can learn together and from others in safe and trusted learning environments (Kyprianidou, 2012; Maksum et al., 2021; McCombs, 2013).

In the field of primary and secondary education, it is found - both in individual empirical studies (Allodi, 2007; Johnson et al., 2014; Leoudi, 2018) and in meta-analysis of research data (Cimer, 2007; Leoudi, 2018; Sakata, 2022; Slavin, 1985, 2015; Surakarn et al., 2020) - that the use of active teaching techniques facilitates the achievement of high learning outcomes and at the same time improves social relationships among group members, enhancing learners' self-esteem. In other words, the use of these techniques is associated not only with the easier achievement of the respective educational objectives but also with the cultivation of a positive climate in the school environment (Courau, 2000).

The particularly positive effect of active teaching techniques in creating a supportive learning environment is also established by research conducted in classrooms in Greek schools. Characteristically, in relevant research in the field of primary education (Kaldi et al., 2009a, 2009b; Kaldi, 2014; Kaldi et al., 2014; Louizou et al., 2019; Leoudi, 2018; Panagakos, 2001) the application of the teaching technique "group work" seems to favour constructive interaction and mutual help among the participants, develops students' cooperative skills, enhances learners' self-esteem, the expected learning outcomes are achieved even by the weakest learners, and it has a positive impact and acceptance also in general classes with a rather heterogeneous sample of learners, such as immigrants, minorities or people with learning difficulties.

2.1 Conceptual definition of the terms: 'teaching method' and 'teaching technique'

By way of introduction, it is necessary to conceptually distinguish the concepts of "Teaching method" and "Teaching technique". 'Teaching method' refers to the way it is used in order to achieve a certain teaching objective. 'Method' refers to the actions and the sequential order in which they must be performed in order to achieve an objective. The choice of a method must be based on basic pedagogical and scientific principles. On this basis, the method is an organised system of knowledge, attitudes and actions. In other words, "method" refers to the organized process of moving from one instructional stage or teaching phase to the next until the final product of the teaching process, which is the intended learning, is produced (Fykaris, 2015).

At the same time, the term "method", which is a compound word derived from the two compound words “post + road”, literally means the road one follows to get from the starting point to a predetermined end (Matsangouras, 2011). Didactic methodology is used to denote sometimes the process of mental processing of data, in which case we speak of processing method, and sometimes to denote the general teaching activity of the teacher, in which case we speak of teaching method. Apart from the learner and the teacher influencing the teaching method, the influence of the teaching aims and objectives on the formation of the method is also important. The teaching method is largely determined by both the aims and objectives of the course and its content. Furthermore, the teaching method is significantly influenced by the findings of modern pedagogy and psychology (learning psychology, evolutionary psychology, pedagogy), the rules of scientific research and the general principles of teaching, such as the principle of self-

action, supervision, closeness to life, relevance, etc. (Matsangouras, 2011). There are different kinds of methods, such as deductive, inductive, critical, etc.

'Teaching method' differs from 'teaching technique' - despite the fact that both terms refer to the process of teaching practice - because 'teaching technique' refers only to the mechanical repetition of 'routine' actions, while 'teaching method' refers also to the theoretical principles underlying routine actions (Matsangouras, 2011).

As an extension of the above, it is noted that there is a significant conceptual difference between teaching techniques and teaching methods (Kokkos, 1999). The instructional method is broader than instructional technique since it refers to a set of principles that define the concept of access to knowledge, and the general standards of how education is delivered. Teaching technique is a specific "pedagogical" tool, it is the means by which the teaching method is applied. In practice, a teaching method is usually implemented in the context of educational activities through the use of various teaching techniques (Kedraka, 2013; Kokkos, 1999; Noyé & Piveteau, 1999). In conclusion, a teaching technique is a short activity carried out by the instructor or learners in order to achieve a specific result (Courau, 2000). A teaching technique proposes procedures that follow a specific order, that is, the application of certain steps (Noyé & Piveteau, 1999).

2.2 Conceptual definition of the term: "learner-centred approach"

The learner-centred approach that aligns with contemporary educational reform is internationally regarded as one of the most widespread approaches to teaching and learning (Schweisfurth, 2019; Zhang et al., 2022). Rooted in constructivism, it brings a new educational perspective from reliance on passively provided knowledge from the outside to internal autonomous construction (Webster, 2015) and further supports the 'development of the whole person' by promoting multiple competencies and individuality (UNESCO, 2015). However, although the learner-centred approach has many positive critiques at the theoretical level, it simultaneously provokes controversial debates about its implementation (Schweisfurth, 2019; Zhang et al., 2022).

The term "learner-centred approach" describes a concept and practice that targets on the one hand learners individually on their needs, interests, experiences, backgrounds, and potentials and on the other hand aims at teaching practices that are most effective for high motivation, meaningful learning and success for all learners (Kyprianidou, 2012; McCombs, 2013). The basic idea of this approach is that learners are co-responsible for their learning (Kyprianidou, 2012; Rogoza, 2005). At the same time, key concepts related to the learner-centred approach are: "Active participation", "Adaptation to needs", "Autonomy", "Relevant skills", "Power sharing" and "Formative assessment" (Bremner, 2021).

The learner-centred approach proposes an academic shift from teaching to learning and encourages students to reflect and interact with others and the teacher, with the content and process of learning (Kyprianidou, 2012). It is based on the person-centred theory of the American psychologist Carl Rogers (1969), whose theory of education is rooted in the humanistic approach, according to which it is necessary to provide a basis

for personal development so that learning can continue throughout life in a self-directed way (DeCarvalho, 1991; Kyprianidou, 2012).

The learner - centred approach can be synthesised in a conceptual framework that includes three overlapping dimensions: humanistic, active and cognitive. The humanistic dimension involves getting to know students as unique human beings, the energetic dimension focuses on empowering students, and the cognitive dimension examines each student's learning progress (Starkey, 2017).

With the learner-centred approach, teaching focuses on learning processes and teaching techniques that are appropriately selected to facilitate students to discover, structure and creatively use knowledge themselves. Emphasis is placed not only on the acquisition of knowledge but also on students' social skills, so that they are able to monitor and critically shape social, political and cultural events. The teacher is no longer the only source of knowledge. The learner can acquire knowledge and skills either individually or through exploratory learning or through interaction with other learners in the context of the classroom group. It incorporates elements of contemporary life to foster acceptance and understanding with collegiality (Papageorgiou, 2015). A learner-centred classroom implies interactions between peers and between teachers and students. Collaboration and communication produce "something new" that may not be achieved otherwise (Sakata, 2022).

3. Methods

The present paper is part of a broader research that utilizes the review of foreign and Greek literature on the contribution of teaching techniques in the development of a learner-centred approach in the classroom of Primary and Secondary Education students. The search for relevant research in the foreign literature was carried out using the terms 'teaching techniques', 'active teaching techniques', 'participative teaching techniques', 'alternative teaching techniques', 'learner-centred approach', 'brainstorming', 'concept map', 'working groups', 'role playing', 'problem - solving', 'debate', 'De Bono's Six Thinking Hats'. The databases ERIC (https://eric.ed.gov/) and ScienceDirect (https://www.sciencedirect.com/), which provide access to reputable scientific journals, were used, and the Google Scholar search engine (https://scholar.google.com/) was also used. Filters were also used to search for research related to primary and secondary education. The initial search resulted in approximately 180 scientific papers. Some 20 papers were excluded as their full content was not available. Another 20 papers were rejected because they were related to higher education. This process led to a final selection of 140 papers that were abstracted according to (a) year of publication, (b) level of education, (c) subject matter. Based on this method, the following seven teaching techniques for developing a learner-centred approach were coded, among others: i) brainstorming, ii) concept map, iii) working groups, iv) role-playing, v) problem-solving, vi) debate and vii) De Bono's Six Thinking Hats.

4. Teaching techniques for the development of the learner-centred approach

When teaching, the teacher can use one or a combination of several teaching techniques to make the taught material comprehensible and digestible by the students. The term used to denote the above is 'teaching technique' and is synonymous with the terms 'teaching technique' or 'instructional technique' and refers to a pedagogical 'tool' which is used in the context of the teaching and learning activities of a teaching strategy and characterises the instructional form of teaching. It is clear that, depending on the subject matter, the technique that is considered to produce the best learning outcomes and to mobilise the interest of the pupils is chosen. The teacher, using different teaching techniques, satisfies the learning needs and different ways of learning of the students and trains them in alternative forms of learning with the ultimate goal of developing a learner-centred approach in the process of teaching and learning (Grigoriadou, et al., 2009).

It is worth noting that no technique guarantees by definition the success and effectiveness of the educational process (Ioannou & Athanasoula-Repa, 2008). In this context, it is necessary to underline that a crucial point for effective teaching is the stage of planning the instruction and the selection of appropriate teaching techniques (Nima & Kapsalis, 2008). The effectiveness of each teaching technique varies depending on the situation. For this reason, the teacher needs to be able to choose the appropriate teaching technique each time and be able to combine it with others in order to achieve the greatest possible participation of students (Ioannou & Athanasoula - Reppa, 2008; Kokkos, 1999). The choice of appropriate teaching techniques depends on several factors, such as the students' level of knowledge, the objectives of the teaching, the needs and interests of the students, the age of the students, the learning climate that is formed in the classroom as a group, the time available, the available supervisory resources and the specificities of the school and the classroom (Kokkos, 1999; Petruța, 2013).

Depending on the content, teaching techniques could be classified as follows (Tsakiri et al., 2007): i) exploration techniques: discovery of knowledge by the students themselves, such as working groups, discussion, etc. ii) application techniques: allowing students to use the knowledge they have acquired, such as exercises, etc. (iii) presentation techniques: presentation of topics by students themselves, such as discussion and demonstration; (iv) guiding techniques: emphasis on joint processing of the course content by the teacher and students, such as role-play, brainstorming, snowstorming, discussion, etc. (v) discovery techniques: students follow a mental exploration, mainly through various forms of simulation.

At the same time, teaching techniques depending on the participation or not of the learners are divided into (Jarvis, 2004, 2014):

- Active-participatory teaching techniques: in these, the interaction between teachers - learners as well as between the learners themselves are developed and they are given the opportunity to develop critical faculties, to work out solutions and to learn by doing. These include brainstorming, group work, role-playing, simulations, etc.

- Non-active techniques: these include an introduction, guided or controlled discussion, demonstration, and questioning.

4.1 Teaching technique: brainstorming

With this technique, students focus their thinking on a topic, generate a variety of ideas and share them with each other (Al Masri, 2019; Dimitriadou, 2016; Mantra et al., 2022). It is based on constructivist theories of learning and teaching according to which our observations engage with prior understandings and existing theories about the world and learners are not passive recipients of information but actively participate in the construction of their knowledge (Bayati, 2015).

Brainstorming is a collaborative process during which students are invited to recall pre-existing knowledge and perceptions about the topic at hand and to spontaneously and freely express their ideas on the topic. In this way, the learners' involvement in the learning process is developed, and new desires and interests are created, while at the same time, intimacy and cooperation between them are increased, resulting in the improvement of the learning climate and the psychology of the learners (Abedianpour & Omidvari, 2018; Bayati, 2015; Courau, 2000; Mantra et al., 2022; Mantra & Handayani, 2022; Widiastuti et al., 2022). However, in addition to the advantages of applying this technique, there may be some disadvantages, such as the brainstorming may degenerate into a display of imagination rather than creative expression, and there is always the possibility that some learners may not participate.

This technique is appropriate for use both at the beginning of the lesson, when students are first confronted with a new concept and during or at the end of the lesson when students' interest begins to wane. One of the main advantages of this teaching technique is that it can be applied at any time of the lesson without any special preparation. It is well known that from the beginning to the end of the lesson the teacher attempts to engage the students so that they become interested and actively involved in the lesson, and suggests various ways in which they will work. In this context, among other things, brainstorming can be used, which takes place when the teacher, when working on a topic, asks students to freely, quickly and spontaneously formulate words or phrases related to the topic under discussion, which they recall from their pre-existing knowledge in order to then acquire new ones (Al Masri, 2019; Bayati, 2015).

It is a very useful technique in problem-solving procedures for introducing a new topic/concept, for recalling some topics that students already know and for evaluating the lesson. In implementing brainstorming, the teacher should encourage the participation and creative expression of all students and the collaboration and development of critical thinking and make use of students' experience (Chaijum, 2020; Widiastuti et al., 2022; Yuliani et al., 2019). Key actions of the teacher when implementing brainstorming are (Al Masri, 2019; Bayati, 2015; Grigoriadou et al., 2009): i) to inform the students well in advance about the topic to be discussed so that there is enough time for them to think; ii) to ensure that the students' ideas are easily recorded. For example, on the blackboard or bulletin board or on a computer screen displayed to the whole class, etc.; iii) when time is up, the teacher organizes the ideas based on the main objective and

focused on the topic and encourages discussion. The teacher will use the list of words/ideas to generate discussion on the topic under study or to solve the problem, iv) Ideas are categorized. At this stage, ideas are grouped according to objective and unambiguous grouping criteria, usually set by the teacher. The group studies and discusses all the words/ideas written down and crosses out those that do not match the criteria. In this way, ideas that approach the topic are highlighted and combined. In order to engage the group, it is useful to do this process loudly and have everyone participate.

4.2 Teaching technique: concept maps (concept mapping)

The concept map, developed by J. Novak (de Ries et al., 2022; Grigoriadou, 2009; Novak & Gowin, 1984), which was based on Ausubel's theory of meaningful learning (Ausubel et al., 1978; Grigoriadou, 2009) in the 1970s, is one of the teaching techniques that aims to enhance constructive and meaningful learning. It is a graphic tool for organizing and representing knowledge. The process of constructing a Concept Map is called concept mapping (de Ries et al., 2022). Conceptual mapping has a positive effect on the development of higher-order cognitive abilities (Barta et al., 2022), such as metacognition (Prinz et al., 2020) and critical thinking (Chen & Hwang, 2020; Tseng, 2019), which contribute not only to academic success but also to life and career success (Barta et al., 2022).

The concept map in the educational process can be (Barta et al., 2022; de Ries et al., 2022; Dimitriadou, 2016; Grigoriadou, 2009; Jonassen, 2000; Novak & Cañas, 2004): i) a teaching technique for planning and organizing the teaching of the subject matter and the educational process ii) a tool for representing and evaluating "what students know", both in the preliminary assessment phase to explore students' prior perceptions and in the formative and final assessment phases and iii) a learning strategy.

The concept map is a teaching technique that the teacher can use during his/her teaching to highlight students' conceptual representations. The teacher, alone or in collaboration with his/her students, during his/her teaching, draws graphic representations in which some of the important elements of a concept and the resulting relationships between them are presented, in order to facilitate students' understanding and organization of conceptual structures. When this technique is applied at the end of the lesson, it can also serve as a means of assessment regarding the degree of understanding of the concepts taught (Chatzidimou, 2012).

A concept map can be simple, connecting concepts at a first level and creating snapshots, or more advanced, connecting existing concepts to new families of concepts. In this way, a map is created that covers a large area in breadth and depth. The map takes the form of a network with no apparent beginning and end, where each user can study the topic starting from the node of their choice.

The phases in creating a concept map are divided as follows (de Ries et al., 2022; Mikropoulos, 2006; Mikropoulos & Bellou, 2010): (i) creation of the first node which gives the central idea of the topic; (ii) direct recording of the first ideas that come to mind on hearing the topic; (iii) creation of relationships between nodes; (iv) deletion of some nodes that are not related to the topic, (v) possible rearrangement of nodes in the graph;

(vi) applications; (vii) mechanism for monitoring the connection of new knowledge to pre-existing structures; (viii) mechanism for assessing conceptual understanding; (ix) mechanism for detecting students' misconceptions; (x) means for cultivating metacognitive skills

It is worth noting that concept maps are implemented with paper and pencil, but the use of the computer for their development brings out their essence and makes them a cognitive tool in the hands of the learner. The value of Information and Communication Technologies (ICT) in the creation and management of concept maps through appropriate software lies beyond the technical facilities they offer. Through the software, all the dimensions of the space of a map are presented, allowing the user to reach the level that he/she wants or meets his/her needs (Aşiksoy, 2019; Barta et al., 2022; Mikropoulos, 2006; Mikropoulos & Bellou, 2010). For example, such software are the conceptual mapping software Cmap Tools, Xmind.

4.3 Teaching technique: working groups

The terms "working in groups" or "teamwork" or "team-centred" or "collaborative" or "team-based" teaching and learning (Matsangouras, 1999; Matsangouras, 2000a, 2000b) are considered essentially synonymous in pedagogical terminology and are used to describe the teaching technique in which students in a classroom are deliberately organised into school work groups to achieve specific pedagogical and teaching goals and objectives. This technique is based on social constructivism, according to the principles of social and cognitive development (Johnson & Johnson, 1999; Johnson et al., 2014; Louizou et al., 2019). It is worth noting that five key elements are required to structure cooperation among participants in work groups: positive interdependence, individual responsibility, promotional interaction, social skills, and group processing (Johnson & Johnson, 2017).

In the context of the working groups technique, students, divided into groups, exchange experiences, carry out activities/exercises, solve problems, reach conclusions, perform experiments, etc., with the aim of cultivating cooperation and communication skills and more complete processing of the subject under examination (Buchs et al., 2021; Grigoriadou, 2009; Johnson et al., 2014; Louizou et al., 2019; Slavin, 2014). Working in groups encourages active participation and develops inter-academic communication, free expression of ideas, and spontaneous exchange of opinions, as well as helps to find the information they need quickly and efficiently to analyse it together (Jakavonytė - Staškuvienė, 2021).

This positive interdependence motivates students to learn, encourages partners to interact with each other in a constructive way and helps them to learn effectively (Buchs et al, 2021). Positive mutual interdependence within groups is recorded when students understand that they are all responsible for the task, that they all contribute to a common goal and therefore they should be able to combine their efforts and be able to come to an agreement (Jakavonytė - Staškuvienė, 2021). Furthermore, working in groups offers collaborating students' opportunities to describe, explain and justify their thinking,

which develops critical thinking and metacognitive level (Matsangouras, 2011; Silva et al., 2022).

At the same time, the role of the teacher is important for the smooth functioning of work groups, since it is up to the teacher to determine how students are grouped, encouraged to confer, share information and help each other (Jakavonytė - Staškuvienė, 2021). The teacher should trust students' abilities to complete the task they have been assigned, promote the development of initiatives, monitor the work of the groups during their working time, provide clear and precise instructions to students on how to work and, finally, coordinate the final stage of the task, which involves drawing conclusions (Grigoriadou, 2009; Johnson et al., 2014; Louizou et al., 2019).

The teaching technique of working groups is applied whenever the teacher asks his/her students to divide into groups and do any kind of exercise or generally manage any issue. When applying this technique, it is possible for students to work on individual tasks the same or different in a group, which does not necessarily require cooperation between them, but it enhances social interaction and communication during its completion, since they sit in groups in the classroom in relation to the frontal arrangement of the class (Kaldi, 2010). This technique is applied flexibly in conjunction with the other techniques. This technique is commonly used to implement project-type composition tasks, in which students take on roles, collect information, research, evaluate and present their work in writing or orally (Kaldi et al., 2011; Kaldi, 2014). At the same time, research shows that the use of this teaching technique in general classrooms with a rather heterogeneous sample of students, such as immigrants, minorities or people with learning difficulties, has a positive effect on the acceptance of these groups (Kaldi et al. 2009a; Kaldi, 2009b; Louizou et al., 2019).

Basic specifications for the implementation of the working groups technique (Dimitriadou, 2016; Kaldi et al. 2009a; Kaldi, 2009b; Kalovrektis et al., 2020; Louizou et al., 2019; Tsakiri et al., 2007):

1) Teams should be small in size so that all members within the team can actively participate in completing the objectives;
2) Usually, groups should be formed randomly in order to avoid the phenomenon of attachment between members who are friends or have the same characteristics (experiences, knowledge, skills, etc.). After a certain period of time, it is advisable to change the composition of the groups;
3) The groups, in cooperation with the teacher, define the roles of their members according to the task they will perform, such as secretary, coordinator, etc.
4) The teacher shall set a specific time limit for the work of the groups and notify each group in good time so that a representative can be appointed to present the result of the work to the class
5) The teacher should monitor the progress of each group's work in relation to the time available and, if appropriate, provide clarification or additional information
6) The teacher may ask all groups to do the same task or divide the task and assign each individual group to work on a part of the task.

7) After the groups have completed their work, the members of the groups present, through their representatives, the results of their work.
8) After the presentations have been completed, the teacher shall ensure that the views are synthesized and conclusions are drawn.

4.4 Teaching technique: role-playing

According to this technique, a group of students, in which the teacher may also participate, takes on the task of re-enacting a function or event with the aim of learning. Role-playing or dramatization as a teaching technique combines the active participation of the participants with collaborative and experiential learning in the context of an educational activity that depicts a real situation (Grigoriadou, 2009; Lestari & Sridatun, 2020; Taylor, 1987). It can have a significant impact on learning when used as a teaching tool, since it is a systematic and structured process, where there are educational objectives, method, design and evaluation (Andrikou, 2022; Kavalierou, 2006; McSharry & Sam, 2000). It favours the development of psychosocial skills, personal identity and awareness of social norms (Bagès et al., 2021; Rosselet & Stauffer, 2013). The key feature of this technique is empathy, which is implicitly generated during the flow of interpersonal relationships (Dimitriadou, 2016).

Role-playing is a particularly useful technique for teaching scientific concepts, in which a group of students takes on the task of representing a function or event. Students are asked to play specific roles associated with a situation under consideration, with the aim, through their active participation and cooperative and experiential learning, to understand more deeply both the situation and their reactions to it (Grigoriadou et al., 2009). In other words, students 'play roles' linked to a specific situation examined in the context of a teaching unit, aiming through experiential situations that arise to understand more deeply both the situation itself and their reactions and attitudes to it.

It is a suggestion for an alternative presentation of the topic being taught, which stimulates students' curiosity and interest in further research, while also helping to develop critical thinking since it does not offer direct solutions to the problematic situation and allows for student interaction (Shaw, 2004). Moreover, teaching through role-playing becomes more accessible to a wider audience, more than any other traditional teaching approach, including students with learning difficulties, since drama is the best teaching method for children with learning problems (Andrikou, 2022; Konstantaros, 2018). Furthermore, the role-playing technique can be applied to any class and level of students (Lestari & Sridatun, 2020).

The process of role-playing should follow the following course (Bayati, 2015): i) Study of the problematic situation (Which groups are involved, with what arguments and values), ii) Formulation of the scenario, iii) Definition of the rules of the game, iv) Formation of groups and elaboration of the roles (As many groups as there are roles), v) Implementation - Playing the roles, vi) Synthesis, vii) Evaluation.

In summary, the use of the role-playing technique in teaching (Bagès et al., 2021; Grigoriadou, 2009; Lestari & Sridatun, 2020): a) enhances students' active participation, placing more emphasis on the process of knowledge production than on the final

outcome; b) encourages students' collaboration; c) provides a safe environment that represents real-life situations where students can apply the theoretical concepts they have been taught; d) provides immediate feedback on difficulties and misconceptions encountered by students. However, although on the one hand, there are several advantages of its application, on the other hand, it requires a long preparation time in order to lead to positive results since there is a dependence of the result on the ability of the teacher and the students, and it is likely to lead to an over-simplification of complex situations and to turn the learning process into a simple game, with consequent problems of classroom coordination.

4.5 Teaching technique: problem-solving

"Problem-solving" is a didactic situation in which individuals are trying to achieve a specific goal and have to find the means and ways. The basic idea of this technique is that a problem is not considered solved when the correct answer is simply offered "ready-made" to the student, but the important thing is that the student, by his own efforts or by cooperating with other classmates, understands what he has to do and why, while giving meaning to his whole effort. By utilizing this technique, students solve problems using the scientific method and by extension, they think more systematically, logically, more regularly and more thoroughly (Maksum et al., 2021; Fykaris, 2014). By applying this technique, higher-order thinking skills associated with creative thinking and critical thinking and decision-making are developed (Simanjuntak et al., 2021; Wanya, 2016).

The process followed by the technical problem-solving technique is as follows (Fykaris, 2014; Nezu et al., 2013; Simanjuntak et al., 2021): i) Defining and presenting the problem; ii) Formulating a design to solve the problem; iii) Organizing information; iv) Using the design and information to find a solution to the problem; v) Critically reviewing and checking the process followed until the solution to the problem is found; vi) Evaluation, where the student draws conclusions about the effectiveness of his/her effort. These extrapolations can be useful tools for solving other future problems.

At the same time, technical problem-solving is a form of active and reflective learning. This technique shifts the responsibility of learning to the students. Students learn to define the problem, to take into account the different parameters, to collect data and through group discussion to approach the optimal solution. Students will choose the best solution, check the proposed/alternative solutions, etc. Everyday life problems, such as environmental problems, are multifactorial and therefore rarely have a single correct solution (Kokkotas et al., 2007).

4.6 Teaching technique: debate

The debate as a particular form of dialogue is a communicative process of structured discussion, it is a process of debate in which two sides argue on an issue. However, it is worth noting that debate differs from dialogue since its goal is not consensus but persuasion (Andrikou, 2022; Dimitriadou, 2016; Frydaki, 2009). This technique provides opportunities for students to organize their thoughts, argue and analyze various controversial issues in order to form personal opinions and make moral judgments

(Andrikou, 2022; Endacott & Brooks, 2018; Frydaki, 2009). At the same time, students who participate in debates develop their critical and analytical thinking, gain a more comprehensive understanding of a subject compared to simple teaching techniques and acquire a greater degree of confidence in expressing their views (Branham, 2013). Through this process, students become familiar with different ways of viewing a topic and acquire conflict resolution skills for their daily social life (Kokkotas et al., 2007).

When applying the teaching technique of debate, in the first phase, a topic for discussion is placed in the classroom and the students are asked to divide into two groups. The purpose of the structured debate is for each member of the class with his/her group to prepare and argue for the aspect of the issue raised and to defend and develop counter-arguments for the other group's positions. The steps that are necessary for a teacher to follow in order to implement dialogic debate in the classroom are as follows (Dimitriadou, 2016; Flogoiti & Liarakou, 2009): i) Introduction to the topic under study based on questions; ii) Appointing a three-member committee of students to evaluate the debate; iii) Forming groups with opposing views on the topic under study; iv) Conducting the debate by exchanging arguments; v) Summarizing the main points and opinions of each group; vi) Evaluation by the three-member committee based on criteria set, such as persuasiveness of arguments, proper documentation of opinions, examples, etc.

4.7 Teaching technique: De Bono's Six Thinking Hats

The teaching technique "De Bono's Six Thinking Hats" is in fact a process of thinking differently, which helps the user to stay focused on the problem at hand and to follow methodical steps until the solution is reached. Invented in the mid-1980s by Dr. Edward De Bono, a psychologist, physiologist and university professor (De Bono, 1986, 2006, 2017; Göçmena & Coşkunb, 2022), as a method of group decision-making, it has evolved into a business management training industry and has made a strong entry into Education (Childs, 2012; Djumabayeva, 2021; Kivunja, 2015; Manesis et al., 2022; Theologis, 2017; Vlahokyriakou & Tzortzakis, 2015). According to this technique, it is considered more effective to separate different aspects of thinking instead of implementing several simultaneous thoughts. In this context, six different thinking hats with different colours represent six different ways of thinking (De Bono, 1986, 2006, 2017; Theologis, 2017). In school education, it is used as a problem-solving and decision-making technique, but it actually helps students to develop another way of thinking. It is applied at all levels, from kindergarten to university with satisfactory learning outcomes (Bayati, 2015).

This teaching technique is designed to help with the deliberate search for and appreciation of different perspectives. By wearing one of six hats, students play different roles and put themselves in hypothetical situations and circumstances. The concept of the hat often metaphorically refers to a person's role or perspective. When the technique is applied in the classroom, students "wear", figuratively or actually, a hat and through it they focus and direct their thinking, on a "visual" aspect of the subject matter of the lesson or discussion. At younger ages, it is suggested that real hats, made of coloured cardboard,

are available, while at older ages students can replace them with virtual mental hats, illustrations of which can be found in the room. When applying the technique, in order for students to study and analyse the topic from different angles, they will wear several hats, but one at a time and always all together (Bayati, 2015; De Bono, 1986, 2006, 2017; Vlahokyriakou & Tzortzakis, 2015).

This technique has been utilized in schools (Manesis et al., 2022) to develop critical thinking and problem-solving skills (Kivunja, 2015) the numerical concept in mathematics education (Elsayed & Abbas, 2021), the development of creative skills (Oleksii et al, 2017) and oral discourse (Djumabayeva, 2021), educational decision making (Papakitsos et al., 2017), teaching issues related to sustainable development in the geography course (Kaya, 2013; Manesis et al., 2022).

The order and the alternation of the coloured hats are determined by the educational design that the teacher follows each time. There is no specific order of use of the hats, it depends each time on the learning object, the expected results and the educational design in general. In the following, the basic steps of a "typical" educational process of using the "6 hats" are presented, where there is a matching of the six hats with six different colours and a simple and concise case of "problem-solving" is described, according to which (Bayati, 2015; De Bono, 1986, 2006, 2017; Manesis et al., 2022; Theologis, 2017; Vlahokyriakou & Tzortzakis, 2015): i) white hat: the problem is considered and its data presented, ii) green hat: "born" and alternative ideas and solutions to the problem are presented; iii) yellow hat: positive criticism is carried out and the advantages are highlighted; iv) black hat: negative criticism is carried out and the disadvantages of the solutions are highlighted; v) red hat: students express their feelings about the highlighted solutions; vi) blue hat: finally, the problem is summarized, conclusions are presented, the solution to the problem is highlighted and the further course of action is determined.

5. Conclusion

Modern teaching approaches have focused on the student's participation in the educational process and on moving away from the teacher-centred model of teaching, from frontal teaching where the teacher is the centre of attention. As an extension of this concern, it is worth mentioning that the application of teaching techniques to develop a student-centred approach is among the factors of effective teaching and learning, since it seems to have a positive effect on all parameters of the educational process, regardless of the level of education under consideration. Specifically, according to the above literature review of the present study, the particularly positive effect of these techniques is demonstrated both on a cognitive level - such as the active involvement of students, the achievement of high learning outcomes, the cultivation of creative and critical thinking - and on a psycho-social level, such as the enhancement of self-esteem and self-image, the strengthening of relationships between team members, the prevention or dampening of friction and conflicts.

These teaching techniques focus on the needs of the students and shape the flow of the lesson accordingly in order to meet these needs and interests (Kain, 2003). More specifically, the main advantages of using these teaching techniques in the teaching and learning process are coded as follows (Cimer, 2007; Chaijum, 2020; Grigoriadou et al., 2009; Kaldi et al., 2009a, 2009b; Kain, 2003; Lak et al., 2017; Leoudi, 2018; Linsenmeyer, 2021; Louizou et al., 2019; Manesis et al., 2022; Mantra et al., 2022; Mantra & Handayani, 2022; Petruța, 2013; Raluca, 2016; Sakata, 2022; Slavin, 1985, 2015; Surakarn et al., 2020; Tseng, 2019; Tursunov, 2016; Widiastuti et al., 2022; Yuliani et al., 2019):

- the subject/lesson becomes more interesting and attractive for students of all ages, resulting in students having a more positive opinion and attitude towards it and higher achievement;
- the subject/lesson becomes more interactive and students interact with each other continuously;
- learners' previous/previous experiences are used;
- improve the social relations of the group members, enhancing the learners' self-esteem;
- facilitate teacher-student interaction, activate and encourage independent thinking and increase motivation to learn;
- help learners to improve understanding and facilitate interpretation, present data in an exciting way and summarise information;
- because of the involvement of students in the educational process, very important skills are developed and cultivated for both personal and academic development;
- students are practising alternative forms of learning with the ultimate aim of developing a learner-centred approach;
- facilitate the learning of students with different learning profiles/styles;
- encourage creative expression and the development of students' critical thinking;
- are positively accepted and conducive to learning in general classrooms with a heterogeneous population, such as immigrants, minorities, pupils with learning difficulties, etc.;
- the teachers themselves who choose to use these techniques are able to develop both professionally and personally as they improve their level of knowledge and develop their skills.

In conclusion, it is necessary for the contemporary educational reality, where the diversity of the student population is particularly intense, to revise the way of teaching, it is necessary to deconstruct entrenched teaching concepts and practices that act as inhibiting factors and as reactive mechanisms in the modernization of the teaching process. The teacher of the modern school needs to constantly reflect and be interested in teaching lessons that are attractive to students, using teaching techniques that develop a learner-centred approach and taking into account the previous experiences, learning profile, needs, skills and interests of the students in his/her class.

Conflict of Interest Statement

The author declares no conflicts of interest.

About the Author

Filippos Evangelou holds a PhD in Science Education and the use of Information and Communication Technologies (ICT) from the University of Ioannina, Department of Primary Education, Greece (2012). From 2020 until today he teaches as a Tutor – Counselor at the Hellenic Open University. His research interests and publications are in the areas of teaching, teaching methodology, pedagogy and the use of computer-based simulations and exploratory experimentation as cognitive tools in science teaching and learning. His research interests and publications are also in the areas of adult education and open and distance learning.

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